rarity. It may have been passed over as a *Githopsis*, as it has somewhat the aspect of a depauperate form of this common plant.

The following species of *Gilia* was also found in a district supposed to be pretty thoroughly explored. Professor Gray informs me that I may regard it as a new species, quite as good as some other of the troublesome forms which have come to light, and which almost efface the distinction between the sections *Dactylophyllum* and *Leptosiphon*. I have had Professor Gray's kind and needful help in shaping the characters of these two species so as to render them more diagnostic than they would have been in my inexperienced hands.

CAMPANULA EXIGUA. Annual, 2 to 5 inches high, with spreading branches, hirsute below, puberulent or almost glabrous above: leaves very small (1 to 3 lines long), sessile, lowest lanceolate or obovate, entire or with a few coarse teeth, upper subulate: flowers solitary at end of the slender divergent branches or short peduncles, erect: calyx-lobes subulate-linear, usually twice the length of the campanulate or somewhat turbinate tube, erect, connivent after flowering: corolla oblong-campanulate, light blue; tube about the length of the calyx-lobes, longer than its oblong acute lobes; filaments abruptly dilated below the middle into a broad ciliolate base: style not surpassing the corolla: capsule somewhat urceolate, opening by three valves above the middle.—Summit of Monte Diablo, June 14, 1886. Also collected, July 3, on Tamalpais, by Mrs. Curran, in full fruit and in a larger and coarser form. The species will rank along with *C. Reverchoni* of Texas, in a separate subdivision.

GILIA AMBIGUA. Habit and foliage of *G. Bolanderi*, but more erect and stouter: corolla much larger, over half-inch long, nearly thrice the length of the calyx, its proper tube equalling the latter or somewhat exserted, the obconical brown-purple throat of nearly same length and hardly exceeded by the rotately expanding bluish purple lobes: ovules 2 in each cell.—Very abundant at Oak Hill, four miles south of San Jose, May 15, in flower and fruit. The only other *Gilia* seen near it was *G. dichotoma*.—VOLNEY RATTAN.

A pleasing experiment in laboratory practice.—The following experiment has proved very satisfactory with classes in vegetable anatomy while upon the subject of mucilaginous modification of the cell wall. The student makes a thin section of a flaxseed and places it dry under the $\frac{1}{8}$ objective so that the outer layer of the external coat is in the field. Pass a drop of water under the cover-glass and watch the section. As soon as the liquid strikes the mucilaginous layer the cells composing it at once enlarge and their dissolved contents float out upon the slide. That which before was a hyaline line, seemingly amorphous, becomes a series of cells nearly uniform in size. The thinness of the section and the unusual exposure of the mucilage permits of the quick outward movement of the cells much to the delight of the student. For a time it was quite a puzzle how the side walls of the rapidly expanding cells could accommodate themselves to the sudden expansion. A quantity of flaxseed was soaked in water, the liquid being changed frequently during a day or more, and the seeds afterwards dried with blotting paper. Upon making thin sections of these seeds, and treating the outer layer as above described, the side walls were well defined, and their method of expanding became plain. These

walls are folded or plaited right and left like the sides of the bellows of an accordeon, the plaits being widest at the bottom, or attached ends, and diminish outward toward the exposed surface. These cells are somewhat irregular, but are usually six sided. If a superficial or thin tangential section of the seed-coat is carefully experimented upon, the mucilaginous cells may be expanded and contracted several times before their contents so far disappear as to arrest further action.

If the student attempts to study the mucilaginous covering without making a section the expansion of the cells and the outward flow of their contents are so slow as to be disappointing. When the thin section has been brought into the field of the high power lens it is well for a neighboring student or an assistant to add the drop of water, thus giving the experimenter the entire use of his time for making the observation.—Byron D. Halsted.

Alaskan plants.—List of plants collected during the summer of 1885, at Ounalashka, by Mr. S. Applegate, the United States Signal Observer at that station. The list, although small, contains several species of great rarity and interest:

Cardamine pratensis L.
Draba hirta L.
Leptarrhena pyrolifolia R. Br.
Epilobium angustifolium L ? Fragments only.
Oxyria digyna Camp.
Luzula campestris DC.
Luzula spadicea DC., var. parviflora Led.
Juncus arcticus Willd.
Juncus Scheuchzeri Hoppe.
Carex decidua Boott. Very rare: the third station in North America. (Fide Bailey in litt. Oct. 22, 1886.)
Carex podocarpa R. Br.
Carex limosa L., var. stygia Bailey.
Festuca rubra L.
Bromus Aleutensis Trin.
Poa pratensis L.
Deschampsia atropurpurea Scheele.
Deschampsia cæspitosa P. Br., var. longiflora Trin.
Trisetum subspicatum P. Br., var. molle Gray.
Deyeuxia Aleutica Vasey.
Deyeuxia Langsdorfii Kunth.
Agrostis canina L.
Agrostis exarata Trin.
Equisetum variegatum Schl.
Cryptogramme acrostichoides R. Br.

I am indebted to Dr. Vasey and Prof. L. H. Bailey, Jr., for assistance in determining the sedges and grasses.—F. H. Knowlton, *U. S. Nat. Museum.*

EDITORIAL.

With this number the Gazette for 1886 is complete. The 350 pages that we have given to our readers represent the best botanical activity of the country, and the fact that several important papers presented this year cannot appear until next, on account of the pressure upon our pages, goes to show that this activity has been unusually great. It is very evident that botanists are working now as never before in this country. Perhaps there is no more interest in the general subject of botany, but there is more independent and valuable work. Our friends have said that the Gazette has been no small influence in encouraging this activity. Whether this is true or not, the botanical signs for 1887 are most encouraging. American botanists are fully awake, and the next year gives promise of much good work. Every botanist should feel called upon to help along this progress, both by making some contribution to botanical knowledge himself, and by warmly supporting a botanical journal that